# CIVIL QUALITY CONSULTANTS & ENGINEERS

(Buildings Geo-Tech & Highway Materials Testing Laboratory)
An ISO 9001: 2008 Certified Company

ISO 9001:2000 CERTIFIED

Job No.: CQCE/BBMP/KTR/W.No.15/2017-18 Date : 03.03.2018

## GRADATION FOR GSB(Coarse Graded-1)
## IS : 2720 (Part - 4)

**lient** : **Executive Engineer,** Dasarahalli Division, BBMP, Bangalore.

**gency** : **Sri. K.T Ramesh,** Contractor, Bangalore.

**ame of work** : Improvements and Re-Asphalting of Road from HKR Chowtri to Shiva Temple Road & 1st main Bhuvaneshwari nagara in Dasarahalli Ward No.15, BBMP, Bangalore.

**ate of Testing** : 03.03.2018

**mple Source** : Mix Plant Bangalore. **Oven Dry Wt (gm) :** 6363

ABLE – 1

| Sieve Size in mm | Weight Retained (gm) | Cumulative Weight Retained (gm) | Cumulative % of Retained | Cumulative % of Passing | Specified Limits |
|---|---|---|---|---|---|
| 75 | - | - | - | 100 | 100 |
| 26.5 | 1998 | 1998 | 31.40 | 68.60 | 55-75 |
| 4.75 | 2585 | 4583 | 72.03 | 27.97 | 10-30 |
| 0.075 | 1485 | 6068 | 95.36 | 4.64 | <10 |
| PAN | 295 | | | | |
| Total | 6363 | | | | |

**emarks:** Satisfies MORTH Specifications as per Table 400-2, Grading I

ote:

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For CIVIL QUALITY CONSULTANTS & ENGINEERS

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ಟಿ.ದಾಸರಹಳ್ಳಿ ಉಪ-ವಿಭಾಗ
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(Buildings Geo-Tech & Highway Materials Testing Laboratory)
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o No.: CQCE/BBMP/KTR/W.No.15/2017-18 Date : 03.03

## ATTERBERG LIMITS TEST FOR GSB (COARSE GRADED)
## IS : 2720 (Part - 5)

lient : **Executive Engineer,** Dasarahalli Division, BBMP, Bangalore.

gency : **Sri. K.T Ramesh,** Contractor, Bangalore.

lame of work : Improvements and Re-Asphalting of Road from HKR Chowtri to Shiva Temple & 1st main Bhuvaneshwari nagara in Dasarahalli Ward No.15, BBMP, Bangalore.

)ate of Testing : 03.03.2018

ıs per MORTH Table : 400-01

| Sl. No. | Particulars | Test Results | Standards as p Specificatior |
|---|---|---|---|
| 1 | Liquid Limit, % | 23.50 | 25.0% Maximu |
| 2 | Plasticity Index, % | Non Plastic | 6.0% Maximu |

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No.: CQCE/BBMP/KTR/W.No.15/2017-18 Date : 08.03

## GRADATION FOR WMM
## MORTH TABLE-400-11

ent : **Executive Engineer,** Dasarahalli Division, BBMP, Bangalore.

ency : **Sri. K.T Ramesh,** Contractor, Bangalore.

me of Work : Improvements and Re-Asphalting of Road from HKR Chowtri to Shiva Temple main Bhuvaneshwari nagara in Dasarahalli Ward No.15, BBMP, Bangalore.

e of Testing : 08.03.2018

erial Type : Wet Mix Macadam

Oven Dry Wt (gm):

| Sieve Size in mm | Weight Retained (gm) | Cumulative Weight Retained (gm) | Cumulative % of Retained | Cumulative % of Passing | Sp |
|---|---|---|---|---|---|
| 53 | 0 | 0 | 0 | 100 | |
| 45 | 235 | 235 | 2.4 | 97.7 | |
| 22.4 | 2585 | 2820 | 28.2 | 71.8 | |
| 11.2 | 2684 | 5504 | 55.0 | 45.0 | |
| 4.75 | 1795 | 7299 | 73.0 | 27.0 | |
| 2.36 | 1165 | 8464 | 84.6 | 15.4 | |
| 0.600 | 630 | 9094 | 90.9 | 9.1 | |
| 0.075 | 528 | 9622 | 96.2 | 3.8 | |

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Job No.: CQCE/BBMP/KTR/W.No.15/2017-18 Date: 08.03.2018

## Aggregate Impact Value
IS: 2386 Part IV

| | |
|---|---|
| Client | **Executive Engineer,** Dasarahalli Division, BBMP, Bangalore. |
| Agency | **Sri. K.T Ramesh,** Contractor, Bangalore. |
| Name of the Work | Improvements and Re-Asphalting of Road from HKR Chowtri to Shiva Temple Road & 1st main Bhuvaneshwari nagara in Dasarahalli Ward No.15, BBMP, Bangalore. |
| Type of Mix | Wet Mix Macadam |
| Date of Testing | 08.03.2018 |

| Sl No. | Details | Trial No. 1 | Trial No. 2 | Trial No. 3 | Average |
|---|---|---|---|---|---|
| 1 | Total weight of aggregate sample filling the cylindrical measure = $W_1$ g | 376 | 378 | 380 | |
| 2 | Weight of agregate passing 2.36 mm sieve after the test = $W_2$ g | 86 | 88 | 90 | |
| 3 | Weight of aggregate retained 2.36 mm sieve after the test = $W_3$ g | 290 | 290 | 290 | |
| 4 | Aggregate Impact value = percent fines 100* ($W_2/W_1$)% | 22.87 | 23.28 | 23.68 | 23.28 |

Comments:

- Maximum allowable Aggregate Impact value for Wet mix Macadam is 30%

Note:

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Job No.: CQCE/BBMP/KTR/W.No.15/2017-18 08.03.2018

## DETERMINATION OF FLAKINESS INDEX & ELONGATION INDEX OF COARSE AGGREGATES

| | |
|---|---|
| Client | **Executive Engineer,** Dasarahalli Division, BBMP, Bangalore. |
| Agency | **Sri. K.T Ramesh,** Contractor, Bangalore. |
| Name of Work | Improvements and Re-Asphalting of Road from HKR Chowtri to Shiva Temple Road & 1st main Bhuvaneshwari nagara in Dasarahalli Ward No.15, BBMP, Bangalore. |
| Technical Reference | IS 2386(Part 1) 1963 (RA 2011) |
| Type of Mix | Wet Mix Macadam |
| Sample ID | WMM Layer |
| Date of Testing | 08.03.2018 |

Result : Flakiness Index = **13.58%**

Elongation Index = **14.12%**

**Result : Combined Flakiness & Elongation index 27.70%**

**Comments:**

Maximum allowable Flakiness & Elongation Index for Wet Mix Macadam is 30%

**Note:**

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Lab No.: CQCE/BBMP/KTR/W.No.15/2017-18 Date : 08.03.2018

## ATTERBERG LIMITS TEST FOR WMM
## MORTH TABLE-400-11

Client : **Executive Engineer,** Dasarahalli Division, BBMP, Bangalore.
Agency : **Sri. K.T Ramesh,** Contractor, Bangalore.
Name of Work : Improvements and Re-Asphalting of Road from HKR Chowtri to Shiva Temple Road & 1st main Bhuvaneshwari nagara in Dasarahalli Ward No.15, BBMP, Bangalore.
Date of Testing : 08.03.2018
Material Type : Wet Mix Macadam

As per MORTH Table 400-13

| Sl. No. | Particulars | Test Results | Standards as per Specifications |
|---|---|---|---|
| 1 | Liquid Limit | 23.00 | - |
| 2 | Plasticity Index, % | Non Plastic | 6.0% Maximum. |

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Job No.: CQCE/BBMP/KTR/W.No.15/2017-18

Date: 13.03.2018

## TEST REPORT

| | | |
|---|---|---|
| **Client** | : | **Executive Engineer,** Dasarahalli Division, BBMP, Bangalore. |
| **Agency** | : | **Sri. K.T Ramesh,** Contractor, Bangalore. |
| **Name of the work** | : | Improvements and Re-Asphalting of Road from HKR Chowtri to Shiva Temple Road & 1st main Bhuvaneshwari nagara in Dasarahalli Ward No.15, BBMP, Bangalore. |
| **Source of location** | : | Hot mix Plant, Bangalore |
| **Date of testing** | : | 13.03.2018 |

The results of the tests conducted on the bitumen sample using for Dense Graded Bituminous Macadam

| Sl. No | Description | Test Result | Requirement as per IS:73:2013 |
|---|---|---|---|
| 1 | Penetration at 25 $^0$C, 1/10 mm | 84 | 80 to 100 |
| 2 | Softening point, $^0$C | 49 | Min. 40 |
| 3 | Ductility at 27$^0$C, cm | 100 > | Min. 75 |
| 4 | Flash Point, $^0$C | 296 | Min. 220 |

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